

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S)	Kevin C. Farrell	ART UNIT:	1725
APPLN. NO.:	10/786,578	EXAMINER:	Jonathan J. Johnson
FILED:	February 23, 2004	Confirmation No.	4367
TITLE:	APPARATUS FOR IMMOBILIZING A SOLID SOLDER ELEMENT TO A CONTACT SURFACE OF INTEREST		

AFFIDAVIT OF EDWIN L. BRADLEY
UNDER 37 CFR § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Edwin L. Bradley, declare and state that:

1. I am a citizen of the United States of America and a resident of Coral Springs, Florida.
2. I hold a B.S. degree in Mechanical Engineering from University of Alabama at Birmingham, an M.S. degree in Materials Engineering from University of Alabama at Birmingham, and a Ph.D. in Materials Science from the University of California, Berkeley, awarded in 1986, 1988, and 1993 respectively.
3. I have been employed as an Engineer by Motorola, Inc. since 1993 and am currently a Distinguished Member of the Technical Staff working in the Advanced Product Technology group of Motorola, Inc. During my 13 years of experience, I have worked continually with surface mount assembly technologies, including the assembly of components.
4. I have reviewed U.S. Patents No. 6,207,475 (Lin et al) cited in U.S. Patent Office Actions dated July 8, 2005, December 21, 2005, Advisory Action dated March 13, 2006, Office Action May 25, 2006, Office Action December 13, 2006 and the Advisory Action dated March 2, 2007.
5. I have reviewed the Specification, Claims, and Drawings of the Application Serial No. 10/786,578.
6. I have reviewed U.S. Patent Office Action dated December 13, 2006 in Application Serial No. 10/786,578 which contains the statement, "In the instant case, it is the Examiner's position that Lin's material would be capable of performing in the claimed manner."

The Examiner's position is incorrect. I respectfully assert that:

Lin's underfill is not capable of performing in the claimed manner of Applicants' adhesive material.

Chip underfill used for direct chip attach (such as Lin's) has a low viscosity which allows only for spreading into the narrow gaps underneath the chip for the purpose of increasing solder joint reliability, after reflow. Chip underfill can not be applied to remain in a predefined area prior to reflow (Applicants' claim 1). Chip underfill is too runny and liquid-like to couple a preform to a substrate prior to reflow (as claimed in Applicants' claim 4). Chip underfill can not maintain a geometry from pre-cure to post cure (as claimed in Applicants' claim 7). The liquid-like consistency of chip underfill makes it unsuitable for pre-attaching or immobilizing a solid solder element to a substrate prior to curing (claim 8 pre-attaching and immobilizing the preform).

The adhesive material Applicants use is a highly viscous adhesive, for accurate control of laying down glue dots as described on page 4, lines 15-21. Based on the criteria set out on page 4, lines 6-14, Applicants' adhesive material is described as having a viscosity being "less liquid-like" and "more solid-like" during the application of the adhesive. Lin's underfill is more "liquid-like" - see col. 4, lines 67 which describes flowing an underfill material. Lin's underfill does what its name implies, it "fills" around and under gaps between a substrate and an IC. Lin's underfill is described in col. 2, lines 54-56 as being fed into the standoff "between an IC die and a substrate by the capillary effect on the underfill liquid."

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,



EDWIN L. BRADLEY

DATE: 03/28/2007